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PHARMACOLOGIC SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT) IMAGING OR PHARMACOLOGIC ECHOCARDIOGRAPHY? A META ANALYSIS OF PHARMACOLOGIC TESTING FOR DIAGNOSIS OF HIGH-RISK CORONARY ARTERY DISEASE.

ACC Poster Contributions
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Background: The relative performance of pharmacologic SPECT and echocardiography (ECHO) in detection of high risk coronary artery disease (HRCAD) is not clear. This study compares their diagnostic performance in the diagnosis of HRCAD (left main (LM) + triple vessel disease (TVD)).

Methods: Studies (identified by Medline search) were included if they used pharmacologic ECHO or SPECT for detection of LM or TVD. Data were extracted using perfusion (reversible deficit) and ancillary (ECG changes, transient ischemic dilatation, abnormal lung uptake, hypotension) parameters for SPECT, and wall motion (reversible abnormality) and ancillary (ECG changes) parameters for ECHO. Sensitivity and specificity were computed. Summary receiver operating characteristic (SROC) analysis and metaregression were performed.

Results: Fourteen studies met inclusion criteria (SPECT-5; ECHO-9). This included 1,887 (SPECT-766; ECHO-789) patients. We found that pharmacologic ECHO had a higher sensitivity (95%vs62%), but lower specificity (42%vs64%) compared to SPECT. The diagnostic odds ratios and SROC analysis were similar. Comparison of isolated perfusion deficit on SPECT to wall motion abnormality alone on ECHO yielded similar results (Table).

Conclusions: In the absence of a direct head to head analysis, this meta-analysis suggests that although the diagnostic performance is similar, stress echocardiography appears to be the screening modality of choice for HRCAD when pharmacological stressor is used.

	Sensitivity		p	Specificity		p	Area Under SROC (Standard Error)		p	Meta Regression (Diagnostic Odds Ratio)		p
	SPECT	ECHO		SPECT	ECHO		SPECT	ECHO		SPECT	ECHO	
Overall*	0.62 (0.54-0.69)	0.95 (0.90-0.98)		0.64 (0.60-0.68)	0.42 (0.39-0.46)		0.70 (0.02)	0.83 (0.03)		3.20 (1.53-6.68)	8.90 (4.43-17.88)	
Perfusion vs. Wall Motion	0.60 (0.52-0.67)	0.95 (0.89-0.98)		0.68 (0.64-0.71)	0.37 (0.33-0.42)		0.70 (0.02)	0.83 (0.03)		3.73 (1.48-9.37)	9.72 (4.14-22.82)	

*Overall = perfusion abnormality + ancillary data on SPECT vs. wall motion abnormality + ancillary data on ECHO
SPECT (Dobutamine-3;Adenosine-1;Dipyridamole-1): ECHO (Dobutamine-9)